Amendments to the Claims

1   Claim 1 (currently amended): A <u>computer-implemented</u> method of programmatically generating

2   a class library to represent messages described in a structured language specification, comprising

3   steps of:

4   <u>detecting, during run-time processing of a machine-processable definition of a network-</u>

5   <u>invocable service, a reference to a structured language specification;</u>

6   <u>locating, responsive to the detection, the referenced structured language specification, the</u>

7   <u>structured language specification encoded in a structured markup language and specifying</u>

8   <u>message syntax definitions for one or more messages usable for interacting with the network-</u>

9   <u>invocable service;</u>

10   <u>locating, responsive to the detection, a template that specifies an image for generated</u>

11 <u>code and specifies where corresponding portions of message syntax definitions are to be</u>

12 <u>substituted therein; and</u>

13   <u>generating the code, according to the template and the definitions in the structured</u>

14 <u>language specification, to be dynamically available for sending request messages to, and</u>

15 <u>receiving response messages from, the network-invocable service, further comprising steps of:</u>

16   parsing <u>locating, in the</u> ~~an input~~ structured language specification<u>, the message</u>

17 <u>syntax definitions of the messages</u> ~~encoded in a structured markup language;~~ <u>and</u>

18   <u>applying the template to the located message syntax definitions to generate code</u>

19 <u>that, when executed, will build an instance of the message for sending and will, if the message</u>

20 <u>syntax definition for the message specifies parameters, dynamically obtain values for the</u>

21 <u>parameters and set those parameter values in the built instance;</u>

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22   applying the template to the located message syntax definitions to generate code

23   that, when executed, will send the built instance of the message, including any set parameter

24   values, to the network-invocable service as a request message;

25   applying the template to the located message syntax definitions to generate code

26   that, when executed, will receive a response to the sent instance of the message from the

27   network-invocable service as a response message and build a response instance therefrom; and

28   applying the template to the located message syntax definitions to generate code

29   that, when executed, will dynamically obtain any defined response values from the received

30   response message and populate the response instance therewith;

31   such that the dynamically-generated code is dynamically invocable during the run-time

32   processing for sending the request messages to, and receiving the response messages from, the

33   network-invocable service.

34   ~~identifying selected aspects of the input structured language specification during the~~

35   ~~parsing step; and~~

36   ~~creating output code for the identified selected aspects by applying previously-specified~~

37   ~~operations, wherein the previously-specified operations create programming language statements~~

38   ~~in a target programming language such that the created output code comprises a class library in~~

39   ~~the target programming language.~~

1   Claim 2 (currently amended): The method according to Claim 1, wherein the [[input]] structured

2   language specification is a schema.

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1   Claim 3 (currently amended): The method according to Claim 1, wherein the [[input]] structured

2   language specification is a Document Type Definition ("DTD").

1   Claim 4 (original): The method according to Claim 1, wherein the structured markup language is

2   Extensible Markup Language ("XML").

1   Claim 5 (currently amended): The method according to Claim 1, wherein the <u>message syntax</u>

2   <u>definitions specify</u> selected aspects comprise presence of one or more of (1) elements

3   <u>corresponding to the messages</u> and <u>optionally specify</u> [[(2)]] attributes <u>corresponding to the</u>

4   <u>elements, the elements and attributes being</u> encoded in the structured markup language.

1   Claim 6 (currently amended): The method according to Claim 5, wherein the <u>message syntax</u>

2   <u>definitions specify, for at least one of the elements,</u> one or more selected aspects further comprise

3   presence of child elements.

1   Claim 7 (currently amended): The method according to Claim 5, wherein the <u>message syntax</u>

2   <u>definitions specify</u> selected aspects further comprise whether the attributes are required attributes.

Claims 8 - 15 (canceled)

1   Claim 16 (currently amended): The method according to Claim 1, further comprising the step of

2   <u>programmatically consulting one or more</u> [[using]] rules<u>, wherein the rules specify one or more</u>

3   of (1) where the generated code should be stored and (2) a name for a class library comprising

4   the generated code to influence processing of the ~~creating~~ generating step.

Claims 17 - 19 (canceled)

1   Claim 20 (currently amended): The method according to Claim 1, wherein the ~~method is~~

2   network-invocable service is ~~invoked during processing of~~ a web service ~~which is specified using~~

3   ~~a reference to the input structured language specification.~~

1   Claim 21 (currently amended): The method according to Claim 20, wherein the reference is

2   specified as a Uniform Resource Locator and the machine-processable definition is specified in a

3   Web Services Definition Language document.

Claim 22 - 25 (canceled)

1   Claim 26 (currently amended): A system for programmatically generating a class library to

2   represent messages described in a structured language specification, comprising:

3   means for detecting, during run-time processing of a machine-processable definition of a

4   network-invocable service, a reference to a structured language specification;

5   means for locating, responsive to the detection, the referenced structured language

6   specification, the structured language specification encoded in a structured markup language and

7   specifying message syntax definitions for one or more messages usable for interacting with the

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8   network-invocable service;

9   means for locating, responsive to the detection, a template that specifies an image for

10   generated code and specifies where corresponding portions of message syntax definitions are to

11   be substituted therein; and

12   means for generating the code, according to the template and the definitions in the

13   structured language specification, to be dynamically available for sending request messages to,

14   and receiving response messages from, the network-invocable service, further comprising:

15   means for ~~parsing~~ locating, in the ~~an input~~ structured language specification, the

16   message syntax definitions of the messages ~~encoded in a structured markup language~~; and

17   means for applying the template to the located message syntax definitions to

18   generate code that, when executed, will build an instance of the message for sending and will, if

19   the message syntax definition for the message specifies parameters, dynamically obtain values

20   for the parameters and set those parameter values in the built instance;

21   means for applying the template to the located message syntax definitions to

22   generate code that, when executed, will send the built instance of the message, including any set

23   parameter values, to the network-invocable service as a request message;

24   means for applying the template to the located message syntax definitions to

25   generate code that, when executed, will receive a response to the sent instance of the message

26   from the network-invocable service as a response message and build a response instance

27   therefrom; and

28   means for applying the template to the located message syntax definitions to

29   generate code that, when executed, will dynamically obtain any defined response values from the

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30   received response message and populate the response instance therewith;

31   such that the dynamically-generated code is dynamically invocable during the run-time

32   processing for sending the request messages to, and receiving the response messages from, the

33   network-invocable service.

34   ~~means for identifying selected aspects of the input structured-language specification~~

35   ~~during operation of the means for parsing; and~~

36   ~~means for creating output code for the identified selected aspects by applying previously-~~

37   ~~specified operations, wherein the previously-specified operations create programming language~~

38   ~~statements in a target programming language such that the created output code comprises a class~~

39   ~~library in the target programming language.~~

1   Claim 27 (currently amended): A computer program product for programmatically generating a

2   class library to represent messages described in a structured language specification, the computer

3   program product embodied on one or more computer-usable media and comprising:

4   computer-readable program code means for detecting, during run-time processing of a

5   machine-processable definition of a network-invocable service, a reference to a structured

6   language specification;

7   computer-readable program code means for locating, responsive to the detection, the

8   referenced structured language specification, the structured language specification encoded in a

9   structured markup language and specifying message syntax definitions for one or more messages

10   usable for interacting with the network-invocable service;

11   computer-readable program code means for locating, responsive to the detection, a

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12   template that specifies an image for generated code and specifies where corresponding portions

13   of message syntax definitions are to be substituted therein; and

14   computer-readable program code means for generating the code, according to the

15   template and the definitions in the structured language specification, to be dynamically available

16   for sending request messages to, and receiving response messages from, the network-invocable

17   service, further comprising:

18   computer-readable program code means for ~~parsing~~ locating, in the ~~an input~~

19   structured language specification, the message syntax definitions of the messages ~~encoded in a~~

20   ~~structured markup language~~; and

21   computer-readable program code means for applying the template to the located

22   message syntax definitions to generate code that, when executed, will build an instance of the

23   message for sending and will, if the message syntax definition for the message specifies

24   parameters, dynamically obtain values for the parameters and set those parameter values in the

25   built instance;

26   computer-readable program code means for applying the template to the located

27   message syntax definitions to generate code that, when executed, will send the built instance of

28   the message, including any set parameter values, to the network-invocable service as a request

29   message;

30   computer-readable program code means for applying the template to the located

31   message syntax definitions to generate code that, when executed, will receive a response to the

32   sent instance of the message from the network-invocable service as a response message and build

33   a response instance therefrom; and

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34   computer-readable program code means for applying the template to the located

35   message syntax definitions to generate code that, when executed, will dynamically obtain any

36   defined response values from the received response message and populate the response instance

37   therewith;

38   such that the dynamically-generated code is dynamically invocable during the run-time

39   processing for sending the request messages to, and receiving the response messages from, the

40   network-invocable service.

41   computer-readable program code means for identifying selected aspects of the input

42   structured language specification during operation of the computer-readable program code means

43   for parsing; and

44   computer-readable program code means for creating output code for the identified

45   selected aspects by applying previously-specified operations, wherein the previously-specified

46   operations create programming language statements in a target programming language such that

47   the created output code comprises a class library in the target programming language.

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